



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

SM.

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/905,176	07/12/2001	Derek A. Debe	265/297	2751
34055	7590	05/18/2004	EXAMINER	
			BORIN, MICHAEL L	
		ART UNIT		PAPER NUMBER
				1631

DATE MAILED: 05/18/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

g/m.

Office Action Summary

Application No.	Applicant(s)	
09/905,176	DEBE, DEREK A.	
Examiner	Art Unit	
Michael Borin	1631	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 03 March 2004.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-28 is/are pending in the application.
 - 4a) Of the above claim(s) 27 and 28 is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1-26 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) Notice of Informal Patent Application (PTO-152)
- 6) Other: _____.

Art Unit: 1631

DETAILED ACTION

Status of Claims

Response to restriction requirement filed 03/03/2004 is acknowledged.

Applicant elected, without traverse, Group I, claims 1-26. Claims 27,28 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected groups. Cancellation of claims 27,28 is requested.

Information Disclosure Statement

Applicants' Information Disclosure Statement filed 11/21/2002 has been received and entered into the application. Accordingly, as reflected by the attached completed copies of forms PTO-1449, the cited references have been considered

Claim Objections

Claim 9, step (b), line 3: change "aid" to "said".

Claim Rejections - 35 USC § 112, second paragraph.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Art Unit: 1631

Claims 1-26 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The rejection is applied for the following reasons.

A. Claims 1,5,7,9,15,21: the phrase "said template sequence" in part (b) lacks antecedent basis as the preceding steps recites "reference sequence" rather than "template sequence".

B. Claims 1,5,7,9,15,21, step a): It is not clear what is the relation of the step (a) to other subsequent method steps. It does not seem that other method steps depend upon or related to step (a).

C. Claims 1,5,7,9,15,21 fail to particularly point out and distinctly define the metes and bounds of the subject matter that will be protected by the patent grant . The claims (and claims dependent thereupon) use the term "BRIDGE/BULGE" gap. The meaning of the term (and the reason for capitalizing it), and its difference from a common gap in sequence alignments is not clear. The specification, although providing particular examples, does not provide a standard for ascertaining what does or does not constitute a "BRIDGE/BULGE" gap, and one of ordinary skills in the art would not be reasonably appraised of the scope of the invention.

Art Unit: 1631

D. Claims 4,7,8,21, 22: It is not clear, in the formula recited by the claims, why the member "GAP" in the formula is a single member representing a single gap penalty, while the formula addresses plurality of alignments between query sequence and multiple of template sequences.

Claim Rejections - 35 USC § 103.

The following is a quotation of 35 U.S.C. § 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103[®] and potential 35 U.S.C. 102(f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-26 are rejected under 35 U.S.C. 103(a) as obvious over admitted prior art (Background section, pages 5-8) or Baxevanis et al. (Bioinformatics, 1998).

Art Unit: 1631

The instant claims are drawn to method for determining a preferred alignment between a query sequence and at least one template sequence comprising the steps of determining an alignment score between the potential alignment of a query sequence and at least one template sequence, and determining a preferred alignment between said query sequence and each said template sequence based on said alignment score.

The method also includes the step (a) of aligning at least two reference sequences to determine one or more BRIDGE/BULGE gaps. However, as there is no connection in the claim language between this step and subsequent steps, the step (a) is not considered to be relevant in determining patentability of the claimed method.

As to this step taken alone, it would be obvious to one skilled in the art to be motivated to determine sequence alignment (and thus, the presence of any gaps in the sequences being aligned) for any sequences of interest present in the database.

As for method defined by the steps of determining alignment score and determining preferred alignment based on such score, as well steps of forming sequence similarity matrix, and calculating alignment from such matrix using alignment sum matrix, - all these steps are well known as steps of dynamic programming methods of sequence alignment determination. Such methods are reviewed in Background section of specification (pages 5-8) or in the review in Baxevanis et al.

Art Unit: 1631

(Bioinformatics, 1998). As for the particular formula recited in claims 4,7,8,21,22, Examiner considers it as an obvious variation of other formulas for calculating sequence alignment sum matrix and invites applicant to demonstrate the novel or unobvious difference between the use of such formula and calculations of sequence alignment sum matrix used in prior art.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Borin whose telephone number is (571) 272-0713. Dr. Borin can normally be reached between the hours of 8:30 A.M. to 5:00 P.M. EST Monday to Friday. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Michael Woodward, can be reached on (571) 272-0722.

Any inquiry of a general nature or relating the status of this application should be directed to the Group receptionist whose telephone number is (571) 272-0549.

May 11, 2004

MICHAEL BORIN, PH.D
PRIMARY EXAMINER

mlb

